



## Earthworms

### EARTHWORMS ARE ADAPTED FOR LIVING IN SOIL

#### MOVING

A worm moves through soil by using special muscles and hydraulics. Hydraulics is the movement of liquids under pressure.

An earthworm is divided into segments. Each is filled with liquid, and each has its own set of muscles. Long muscles run along the sides of each segment, and circular muscles go around each segment.

When long muscles tighten—or contract—the segment is squeezed so it gets shorter. The liquid in the segment presses outward, making the segment fatter. When circular muscles tighten, the segment is squeezed around the middle, so it gets thinner. Liquid in the segment is pushed lengthwise, making the segment longer. The tightening of one set of muscles and then the other happens in waves down the segments of the earthworm's body. This helps to pull and push the worm along.

Bristles, called setae, are located on each segment of the earthworm's body. They prevent the earthworm from slipping backwards.



#### BREATHING

The earthworm's skin has glands that give off mucus. This mucus helps the earthworm breathe because it keeps the body moist. The earthworm breathes through its thin skin. Oxygen dissolves in the moisture on the earthworm's body, and then passes into the body.

#### FEEDING

The earthworm is specially adapted for feeding underground.

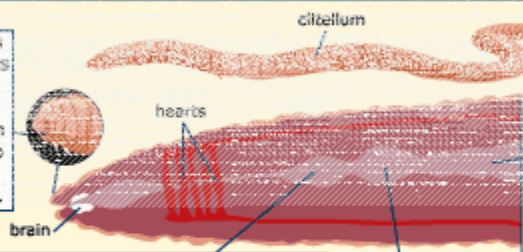
1. A hard area on the head forces open cracks in the soil. The earthworm can then crawl into the cracks in search of food.

2. When the earthworm swallows small particles of soil and bits of dead plants and animals, muscles push the food to a chamber or sac called a crop. The crop stores food for a short time.

3. Food enters the gizzard, where it is ground up with the help of tiny stones.

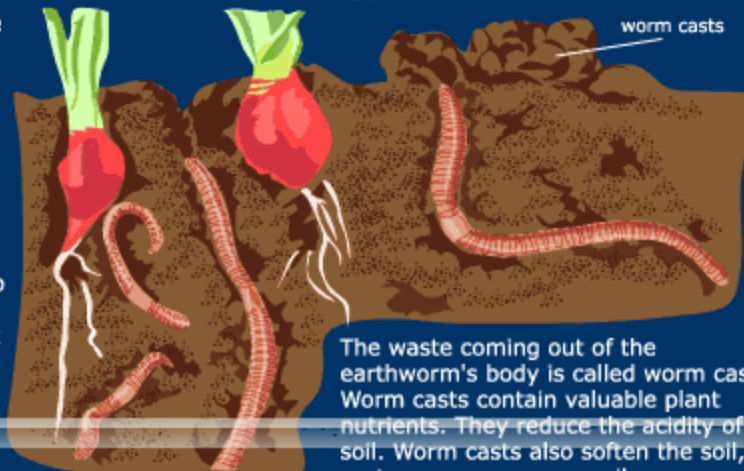
4. The ground up food passes into the intestine. Digestive fluids break down the food, and nutrients are absorbed into the body.

5. The waste material passes out of the body through the anus.



## EARTHWORMS CULTIVATE AND FERTILIZE SOIL

As earthworms move through soil, they make tunnels. These tunnels let air reach plant roots, and let water drain through soil. Mucus that earthworms produce helps bind soil particles together, so that the tunnels keep their shape. Earthworms also mix soil layers as they burrow.



The waste coming out of the earthworm's body is called worm casts. Worm casts contain valuable plant nutrients. They reduce the acidity of soil. Worm casts also soften the soil, so roots can grow more easily.

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